What is claimed is:

1. A method for restoring cellular phenotype in a cell affected by disease, damage, or age, the method comprising:

activating an intracellular pathway that induces expression of a phenotype-specific gene,

thereby to restore cellular phenotype.

2. The method of Claim 1, wherein said pathway is a pathway that is activated by specific binding of a morphogen to its transmembrane receptor.

3. The method of Claim 1, wherein said activating step comprises inducing intracellular formation of a Smad complex capable of inducing expression of a phenotype-specific gene.

4. The method of Claim 3, wherein said Smad complex comprises Smad1 and Smad4.

5. The method of Claim 3, wherein said inducing step comprises phosphorylation of a Smad molecule.

6. The method of Claim 1, wherein said activating step comprises exposing a cell having morphogen type-1 and morphogen type-II receptors to a small molecule capable of being an agonist of a morphogen type-I or morphogen type-II receptor.

7. The method of Claim 3, further comprising the step of inducing translocation of said Smad complex in to a cell nucleus.

8. The method of Claim 1, wherein the cell is a hepatocyte.

9. The method of Claim 1, wherein the cell is a renal cell.

10. The method of Claim 1, wherein said activating step comprises inducing the expression of a Smad protein.

11. The method of Claim 1, further comprising the step of transfecting the cell with a DNA encoding a Smad protein.

12. The method of Claim 11, wherein said transfecting step is performed by using an adenovirus-based vector.

13. The method of Claim 11, wherein said transfecting step is performed by using a plasmid including said DNA.

14. A method restoring cellular phenotype in a cell affected by disease, damage, or age, the method comprising:

inhibiting an intracellular pathway that induces expression of a gene that is an inhibitor of normal phenotype,

thereby to restore cellular phenotype.

15. The method of Claim 14, wherein said gene encodes TGF-β.

16. The method of Claim 14, wherein said inhibiting step comprises inducing expression of Smad6.

17. The method of Claim 14, wherein said inhibiting step comprises inducing expression of Smad7.

18. The method of Claim 1, wherein said activating step comprises administering a morphogen to a patient.

19. The method of Claim 18, wherein said morphogen is selected from the group consisting of OP-1, OP-2, OP-3, BMP-2, BMP-3, BMP-3b, BMP-4, BMP-5, BMP-6, BMP-9, BMP-10, BMP-11, BMP-12, BMP-13, BMP-15, DPP, Vgl, Vgr-1, GDF-1, GDF-2, GDF-3, GDF-5, GDF-6, GDF-7, GDF-8, GDF-9, GDF-10, GDF-11, GDF-12, 60A, NODAL, UNIVEN, SCREW, ADMP, and NEURAL.